

REMARKS/ARGUMENTS

The rejections presented in the Office Action dated December 28, 2007 (hereinafter Office Action) have been considered. Claims 1, 6, 21, 26, and 36 have been amended in this response. Claims 7, 8, 19, 20, 27, 38-40, and 44 have been canceled in this response. After entry of the present amendment, claims 1-6, 11, 12, 14-17, 21-26, 29-34, 36, 37, and 43 remain pending in the application, claims 3, 4, 14-16, 2, 23, 29, 33, 34 and 37 have been withdrawn, and claims 7-10, 13, 18-20, 27, 28, 35, 38-42, and 44 have been canceled. Reconsideration of the pending claims, rejoinder of the withdrawn claims, and allowance of the application in view of the present response is respectfully requested.

Claims 1, 2, 5-8, 11, 17, 21, 24-27, 30, 36, 38-40 and 43 are rejected based on 35 U.S.C. §102(e) as being anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 5,653,738 to Sholder (hereinafter "Sholder").

Applicant respectfully disagrees with the Examiner's characterization of Sholder and the contention that Sholder anticipates these claims. Applicant respectfully asserts that several features recited in the independent claims 1, 21, and 36 are not disclosed in Sholder. Independent claims 1, 21, and 36 have been amended to clarify and facilitate understanding of these claims, and not for purposes of overcoming prior art. Support for the amendments may be found, for example, at page 20, lines 18-29. Dependent claims 6 and 26 have been amended for consistency with independent claims 1 and 21, respectively.

Applicant's invention involves a method of pacing to restore or maintain consistent ventricular pacing. To accomplish this, when disrupted ventricular pacing is detected, the pacing sequence is modified to decrease the post ventricular refractory period (PVARP). Decreasing PVARP allows consistent ventricular pacing to be recovered following a disruption. For example, disrupted ventricular pacing can occur when genuine intrinsic atrial contractions are "hidden" by PVARP. These hidden atrial contractions do not initiate an atrioventricular delay (AVD), and thus a ventricular pace may not be delivered during the cardiac cycle. Therefore, to restore or maintain ventricular pacing in the situation where genuine intrinsic depolarizations are hidden by PVARP, it is advantageous to shorten

PVARP to uncover these atrial depolarizations so that atrioventricular synchronous ventricular pacing can occur.

Each of the independent claims 1, 21, and 36, as amended, include, in some form, implementing a modified pacing timing sequence that includes a decreased PVARP. The amended claims also include limitations directed to scheduling pacing to the ventricles using the sensed atrioventricular delay (SAV) relative to a sensed non-refractory atrial event and delaying pacing the ventricles until expiration of the maximum tracking rate interval if a maximum tracking rate interval has not expired before the scheduled pacing to the ventricles.

Sholder does not teach or suggest at least these elements which can be found in each one of Applicant's independent claims. Sholder describes a pacemaker that detects when a pacemaker mediated retrograde rhythm (PMRR) occurs and alters the pacing operation to terminate the PMRR. Once a PMRR is detected, the pacemaker automatically extends the PVARP of the pacemaker to block any retrograde p-waves that may be occurring as part of the PMRR. (*see, e.g.*, Sholder, abstract)

The pacing operation described by Sholder is clearly different from that of Applicant's claims. Sholder describes detecting a condition that occurs when **retrograde** p-waves are detected after the PVARP. Each of these retrograde p-waves are misinterpreted by the pacemaker as a genuine intrinsic atrial depolarization, thus the scheduled atrial pace is inhibited and an atrioventricular delay (AVD) begins. When the AVD terminates without the sensing of an R-wave, a V-pulse is triggered, which in turn generates another retrograde p-wave. (*see*, Sholder col. 12, lines 41-59) The repeated occurrence of a sequence of pacing cycles made up of a V-pulse followed by a retrograde p-wave is termed a pacemaker mediated retrograde rhythm (PMRR). (*see*, Sholder col. 12, lines 64-67 through col. 13, lines 1-3)

Sholder states that once a PMRR is determined to be present, the duration of the PVARP is **extended** from its normal value to an extended value. (*see*, Sholder col. 13, lines 56-59). Thus the operation of the Sholder's process and that of the present invention is clearly different. Whereas Sholder attempts to terminate pacing behavior brought about

by retrograde p-waves that occur outside of PVARP and which misinterpreted as genuine atrial depolarizations, Applicant's invention involves restoring ventricular pacing that is disrupted causing genuine atrial depolarizations to occur within PVARP.

Sholder does not teach or suggest decreasing PVARP to restore disrupted ventricular pacing. In contrast, Sholder teaches that PVARP should be extended to block sensing of retrograde p-waves. Furthermore, Sholder does not describe scheduling pacing to the ventricles using a sensed atrioventricular delay (SAV) relative to a non-refractory atrial event and delaying pacing to the ventricles until expiration of the maximum tracking rate interval if a maximum tracking rate interval has not expired before the scheduled pacing to the ventricles. For at least these reasons, independent claims 1, 21, and 36, and all claims dependent thereon are not anticipated by Sholder.

Claims 12, 19, 31 and 32 are rejected based on 35 U.S.C. §103(a) as being unpatentable over Sholder.

Claim 19 has been canceled rendering the rejection of claim 19 moot.

Obviousness under §103 requires an objective analysis of the following: "the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art are resolved." *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 82 USPQ2d 1385 (2007) (quoting *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966) Evidence of secondary considerations must also be considered. *Id.*

The Office Action indicates that Sholder represents the scope of the prior art. Applicant reasserts arguments presented above regarding Sholder's deficiencies at teaching various elements of Applicant's independent claims 1 and 21, from which claims 12, 31, and 32 depend.

Because the asserted reference fails to teach or suggest several of the above-identified limitations, and because the reference does not provide a sufficient basis to support a reasonable expectation of success or the requisite suggestion or motivation to combine or modify the references in the manner suggested by the Examiner, Applicant respectfully submits that Sholder fails to support the rejection of claims 12, 31, and 32.

Claims 1, 2, 5-8, 11-12, 17, 19, 21, 24-27, 30-32, 36, 38-40 and 43 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 5, 14, 16, 17, 19, 22, 23, 28, 29 and 34 of copending application no. 10/794,323 and over claims 1, 2, 6-10, 15-19, 23-27, 31-34, 38-45, 47-49, 53 and 54 of copending application no. 10/794,151.

A power of attorney and terminal disclaimer were previously submitted in this case. Applicant believes that the submission of these documents renders moot the rejection based on nonstatutory double patenting.

Applicant is submitting a supplemental IDS to correct the patent number for the Kieval patent indicated by the Examiner.

It is to be understood that Applicant does not acquiesce to Examiner's characterization of the asserted art or Applicant's claimed subject matter, nor of the Examiner's application of the asserted art or combinations thereof to Applicant's claimed subject matter. Moreover, Applicant does not acquiesce to the Examiner's statements or conclusions concerning what would have been obvious to one of ordinary skill in the art, obvious design choices, common knowledge at the time of Applicant's invention, officially noticed facts, and the like. Applicant reserves the right to address in detail the Examiner's characterizations, conclusions, and rejections in future prosecution.

Authorization is given to charge Deposit Account No. 50-3581 (GUID.150DIV4) any necessary fees for this filing. If the Examiner believes it necessary or helpful, the Examiner is invited to contact the undersigned attorney to discuss any issues related to this case.

Respectfully submitted,

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